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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 09/878,051 | 06/07/2001 | Thomas M. Cronin | 10559-478001/P11157 | 1971 |
| 20985 | 7590 | 10/19/2004 | EXAMINER | |
| FISH & RICHARDSON, PC 12390 EL CAMINO REAL SAN DIEGO, CA 92130-2081 | | | CAO, HUEDUNG X | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 2821 | |

DATE MAILED: 10/19/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/878,051

Applicant(s)

CRONIN, THOMAS M.

Examiner

Huedung X Cao

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 September 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-30 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kancler et al. (US Patent 5838813) in view of Montag et al. (USP 5926401).

As per claim 1, Kancler teaches the claimed "a method of rendering a three-dimensional model," comprised of volumetric three dimensional data, comprising:

obtaining a characteristic of the model (Kancler, column 7, lines 12-18);

determining a dither pattern based on the characteristic (Kancler, column 7, lines 35-40), the dither pattern comprising points in a volumetric region, the points being assigned values to make the dither pattern correspond to the characteristic; and rendering a dithered version (Kancler, col. 9, lines 9-15) of the model using the dither pattern. It is noted that Kancler does not explicitly teach the model and the dither pattern are "three dimensions" as claimed. However, Montag teaches that the dither pattern comprising points in a volumetric region, the points being assigned values to make the dither pattern correspond to the characteristic can be used to represent or render a three-dimensional model (Montag, column 5, lines 16-24; and column 8, lines 17-49).

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Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use a dither pattern to render a three dimensional model because the objects in the scene can be the three-dimensional model combined by a plurality of polygons for representing as a computer graphic model.

Claim 2 adds into claim 1, wherein determining comprises selecting a number of points to make up the three-dimensional dither pattern (Kancler, column 6, lines 21-29) and a location of the points on the three-dimensional model (Kancler, column 8, lines 10-13).

Claim 3 adds into claim 1, wherein the characteristic is obtained for a region of the three-dimensional model, and the three-dimensional dither pattern is determined for the region" (Kancler, col. 9, lines 30-42).

Claim 4 adds into claim 3, wherein characteristics are obtained for different regions of the three-dimensional model, different three-dimensional dither patterns are determined for the different regions based on the characteristics for the different regions, and the three-dimensional model is rendered using the different three-dimensional dither patterns (Kancler, column 7, lines 35-52; column 9, lines 11-15).

Claim 5 adds into claim 1, wherein the three-dimensional dither pattern comprises data specifying pixels to illuminate when rendering the three-dimensional model (Kancler, column 5, lines 51-62).

Claim 6 adds into claim 5, wherein the pixels define individual points in the three-dimensional dither pattern (Kancler, column 5, lines 60-66).

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Claim 7 adds into claim 1, wherein the characteristic comprises a density of the three-dimensional model (Kancler, col. 4, lines 22-27).

Claim 8 adds into claim 7, wherein the density is obtained for a three-dimensional region of the three-dimensional model by averaging densities of sub-regions within the three-dimensional region (Kancler, col. 7, lines 52-62).

Claim 9 adds into claim 1, wherein the characteristic comprises one of a color of the three-dimensional model, a field strength in the three-dimensional model, a temperature in the three-dimensional model, and a pollution concentration in the three-dimensional model (Kancler, col. 9, lines 33-39, sampling the color of model).

Claim 10 adds into claim 1, wherein determining the three-dimensional dither pattern comprises selecting the three-dimensional dither pattern from a number of three-dimensional dither patterns stored in memory (Kancler, column 9, lines 44-48).

Claims 11-20 claim a machine readable medium based on a method of claims 1-10; therefore, they are rejected for a same reason.

Claims 21-30 claim an apparatus based on a method of claims 1-10; therefore, they are rejected for a same reason.

Response to Arguments

4. Applicant's arguments filed 09/07/2004 have been fully considered but they are not persuasive.

Applicant argues that Prior art does not teach or suggest "determining a dither pattern comprised of points in a volumetric region, where the points are assigned values to make the dither pattern correspond to a characteristic" which is not correct. Kancler does teach that in his mechanical diagram of the image reconstruction (Kancler, column 6, lines 21-29; and column 8, lines 10-13). Furthermore, Montag teaches that the dither pattern comprising points in a volumetric region, the points being assigned values to make the dither pattern correspond to the characteristic can be used to represent or render a three-dimensional model (Montag, column 5, lines 16-24; and column 8, lines 17-49).

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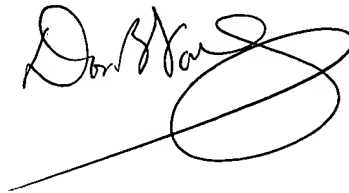
Inquires

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Huedung Cao whose telephone number is (571) 272-1939.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Don Wong, can be reached on (571) 272-1834. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

6. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Huedung Cao
Patent Examiner

A handwritten signature in black ink, appearing to read 'Huedung Cao', with a large, stylized loop at the end.